ECHOSTAR SR8700

MODEL

SERVICE MANUAL

NOTES

UNLESS OTHERWISE SPECIFIED:

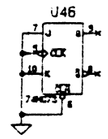
1. RESISTORS ARE IN OHMS, 1/8W, 5%, 1206 PACKAGE
2. ALL 1/4W RESISTORS ARE THROUGH HOLE COMPONENTS
3. CAPACITORS ARE IN uF, 50V, 20%, 1206 PACKAGE
4. INDUCTORS ARE IN uH

⚠5 USE 61C POST-PRINT BUT, POPULATE WITH 623 TUNER.

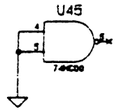
REVISIONS				
ECO	REV	DESCRIPTION	DATE	UPDATED BY
EDM2899	0A-00	INITIAL RELEASE	01-08-98	E. SPLETZER
Z3955	0B-00	LPP RELEASE	03-06-98	S. TITUS
Z3989	0C-00	REFLECT B.O.M. CHANGES	03-19-98	S. TITUS
Z4488	0D-00	RF REL, VC +12 FIX & VIDEO CKT'S	9-08-98	S. HENRY

SPARE GATES

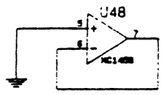
U46



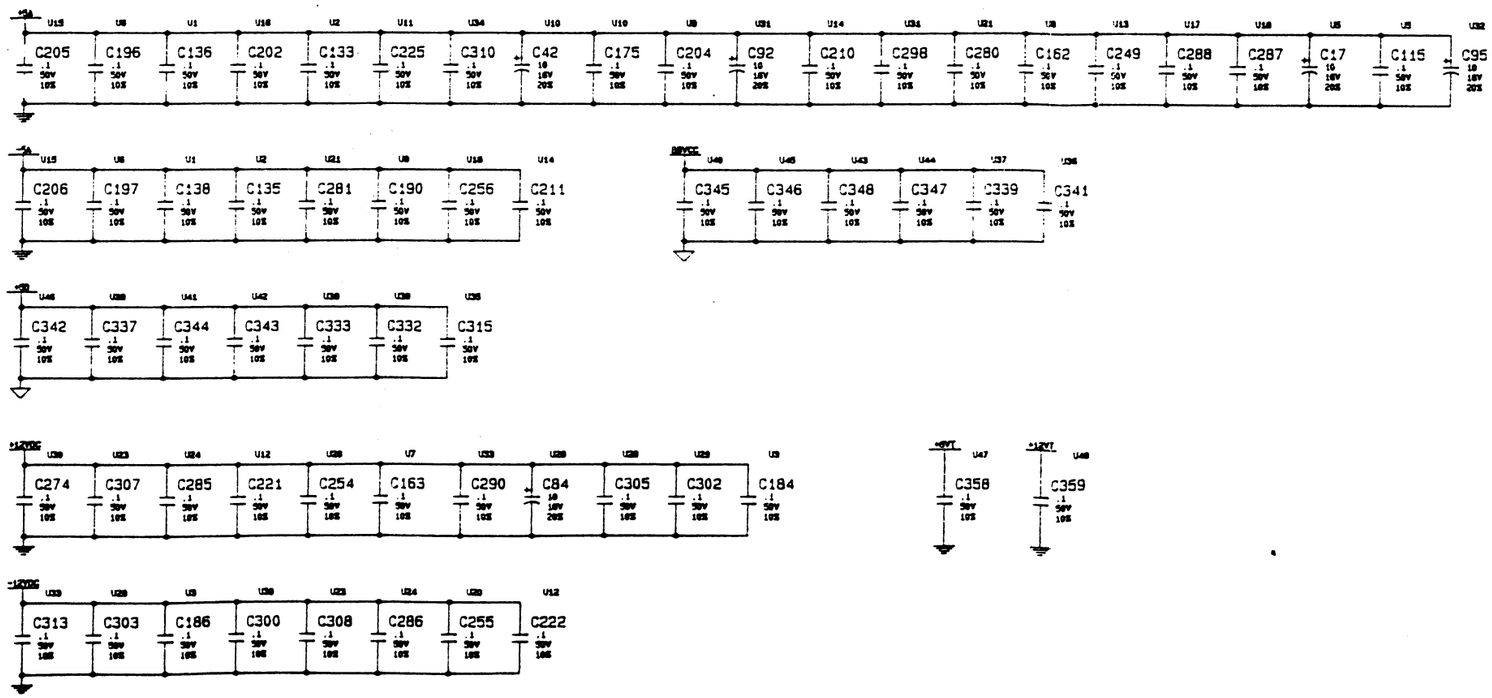
U45



U48



DECOUPLING CAPACITORS



POWER AND GROUND CONNECTIONS

REF DES	POWER PINS						GROUND PINS	
	-12VDC	+12VDC	-5A	+5A	+5D	5SWDC	GND	DGND
U1			7	16			8	
U2			7	16			8	
U3	4	8						
U4								
U5				8,16			12	
U6			7	16			8	
U7		3					12	
U8			7	16			8	
U9				16			8	
U10				8,16			12	
U11				16			8	
U12	4	8						
U13				14			7	
U14			7	16			8	
U15			7	16			4	
U16				16			8	
U17				16			8	
U18			1	16			8	
U19	4	8						
U21	4	8						
U22			7	16			8	
U23	4	8						
U24	4	8						
U25	4	8						
U26								
U27	4	8						
U28		16					8	
U29	4	8						
U30	4	8						
U31				8,16			12	
U32			7	16			8	
U33	4	8						
U34				16			8	
U35					22		11	
U36						14	7	
U37						14	7	
U38				11			28	
U39						28	14	
U41				28			14	
U42				32			16	
U43						14	7	
U44						14	7	
U45						14	7	
U46				4			11	
U47			18				8	
U48	8						4	

REFERENCE DESIGNATORS		
	LAST USED	NOT USED
BT1	J15	C134
CR99	R54	J10
CR48	R499	J12
FL8	RZ4B1K	J13
H01	TH84	R8
J102	TP30	R74
L38	TP594	
L84	U48	
N5	Y98	
R884	Z1	

NOTICE: THIS DRAWING CONTAINS CONFIDENTIAL INFORMATION AND IS THE SOLE PROPERTY OF HOUSTON TRACKER SYSTEMS. UNAUTHORIZED REPRODUCTION OR DISTRIBUTION IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF HTS

APPROVALS		DATE
DRAWN	R. SHEDDEN	11-10-98
CHECKED		
APPROVED		

HTS

TITLE: SCH, CPU&A/V 8700

SIZE: E | DWG NO: T75020300-00

SCALE: NONE | SHEET: 1 of 13

HTS ENGINEERING

001895

VIDEOCRYPT SIGNAL

VIDEOCRYPT POWER

REAR PANEL I/O

ACC OUT

UHF

PWR CTRL

DISPLAY

POWER

SCART

TUNER

OPT. TUNER INTERFACE

MODULATOR

OPT. DECODER

GROUNDED MOUNTING HOLES

ISSUED

JUN 0 4 1993

ECO # 2460

SHEET 115 OF 134

TITLE	CONNECTORS, TUNER, MODULATOR
SIZE	E
DWG NO	T75020300-00
SCALE NONE	SHEET 2 of 13

SAA7000

INPUT 9MHZ LOW PASS

VIDEO INVERT

AUDIO BPF

CHROMA TRAP

VIDEO ATTENUATOR

PAL DEMPH

NTSC DEMPH

VIDEO AMP

TP7

VCPT FILTER

DELAY EQUALIZATION

VIDEO AMP

VCPT CLAMP

ISSUED
JUN 0 4 1003

HTS ENGINEERING
ECO # 2460
SHEET 116 OF 134

TITLE	VIDEO 1
SIZE	E
DWG NO	T75020300-00
SCALE	NONE
SHEET	3 of 13

00L845

VIDEO INPUT SELECTOR

BAD VIDEO ATTENUATOR

CLAMP LEVEL ADJUST

GRAPHICS INSERT MUX

VIDEO AMP

H SYNC SEPARATOR

V SYNC SEPARATOR

VIDEO QUALITY DETECTOR

ISSUED
JUN 0 4 1993

KTS ENGINEERING
ECO # 2460
SHEET 117 OF 134

TITLE	VIDEO 2
SIZE E	DWG NO T7502030D-00
SCALE NONE	SHEET 4 of 13

VIDEO AMP

VIDEO LOW PASS FILTER

(2VPP VIDEO)

SENSE BIT SELECTOR

FERRITE DRIVE

12V ACC JACK OUTPUT

ISSUED

JUN 0 4

HTB ENGINEERING

ECO # 2460

SHEET 118 OF 134

TITLE	VIDEO 3	
SIZE	DWG NO	T75020300-00
SCALE	SHEET	5 of 13

5A8700

IF FILTER BANK (SWITCHABLE)

MIXER

L.C. PLL

L.C. VCO

FM DEMOD

ISSUED
JUN 04 1993

HTS ENGINEERING
ECO # 2460
SHEET 119 OF 134

TITLE	AUDIO-RIGHT
SIZE E	DWG NO T75020300-00
SCALE NONE	SHEET 6 of 13

IF FILTER BANK (SWITCHABLE)

MIXER

FM DEMOD

L.O. PLL

L.O. VCO

ISSUED
JUN 0 4 1998

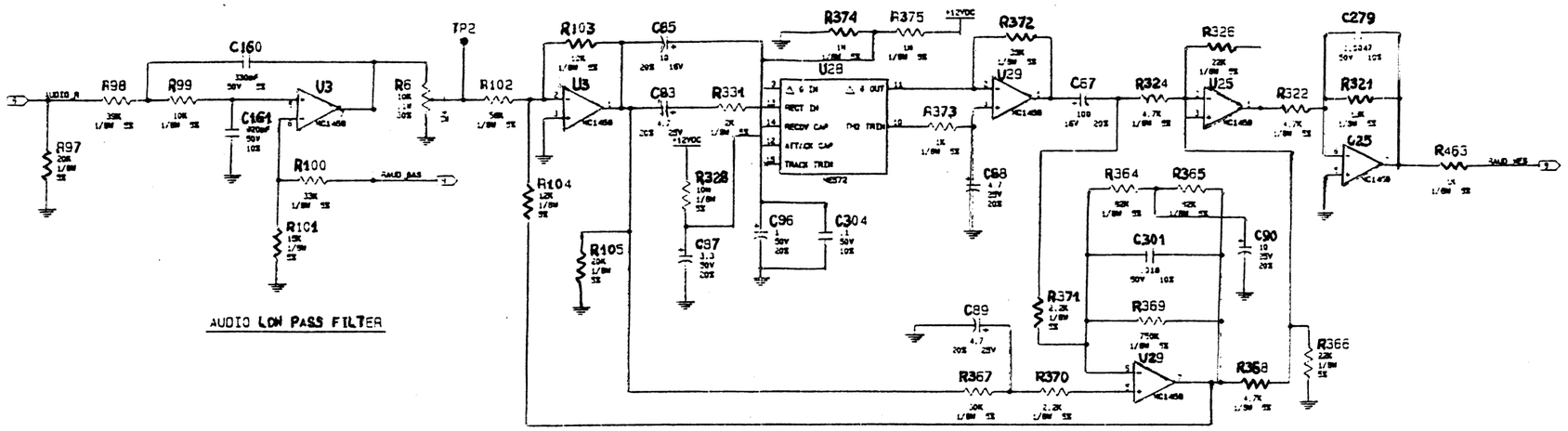
HTS ENGINEERING
ECO # 2460
SHEET 120 OF 134

TITLE	AUDIO-LEFT	
SIZE	DWG NO	
E	T75020300-00	
SCALE NONE	SHEET 7 of 13	

DOLBY

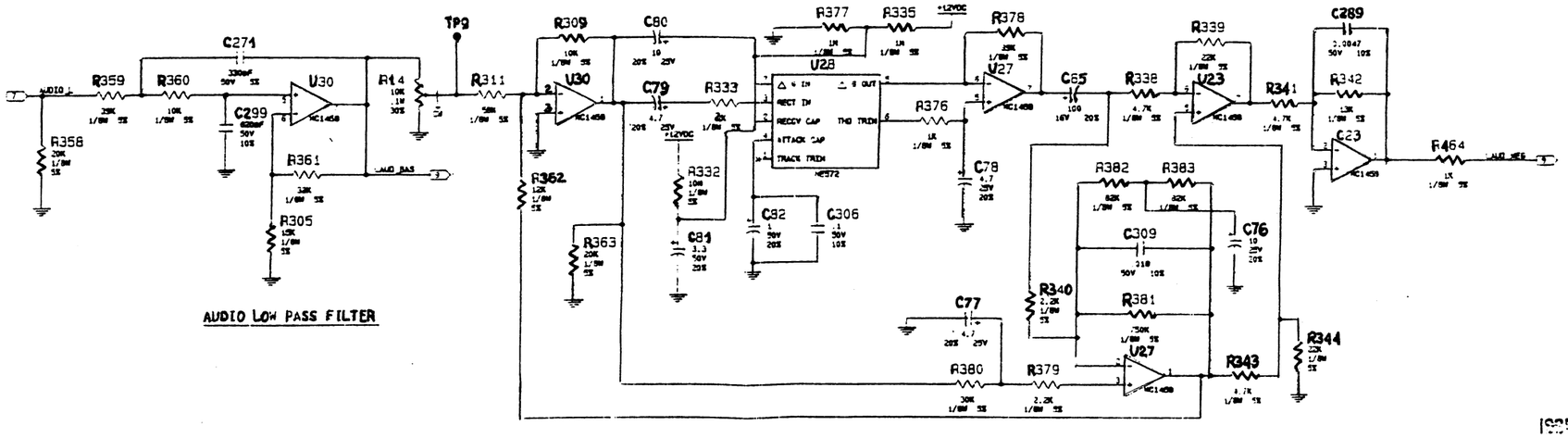
RIGHT CHANNEL

WEGENER PROCESSOR



LEFT CHANNEL

WEGENER PROCESSOR



ISSUED

JUN 0 4 1999

HTS ENGINEERING

ECO # 2460

SHEET 121 OF 134

TITLE	ADAPTIVE DEEMPHASIS
SIZE	E
DWG NO	T75020300-00
SCALE NONE	SHEET 8 of 13

001845

DE-EMPHASIS NETWORKS

50uS

75uS

J-17

DE-EMPHASIS NETWORKS

50uS

75uS

V-17

AUDIO DE-EMPHASIS SELECTOR

AUDIO SOURCE SELECTOR

ISSUED

JUN 0 4 1999

HTG ENGINEERING

ECO # 2460

SHEET 122 OF 134

TITLE	AUDIO MULTIPLEXING
SIZE	E
DWG NO	T7502030D-00
SCALE NONE	
SHEET	9 of 13

VOLUME CONTROL

U18

U20

U24

U12

C56

C66

C220

C223

C253

C284

R272

R274

R278

R280

R282

R329

R330

R334

R336

R337

R207

R208

R209

R210

R211

R212

R213

R214

R215

R216

R217

R218

R219

R220

C45

C355

ISSUED

ENGINEERING

ECO # 2460

SHEET 123 OF 134

TITLE	BASEBAND AUDIO PROCESS
SIZE	E
DWG NO	T75020300-00
SCALE	NONE
SHEET	10 of 13

13/18 VOLT LNB SWITCH

PORT SWITCH

PORT B POWER SWITCH

AGC LOW PASS FILTER

SAMPLE/HOLD

A/D

TUNER PLL

TUNER VOLTAGE

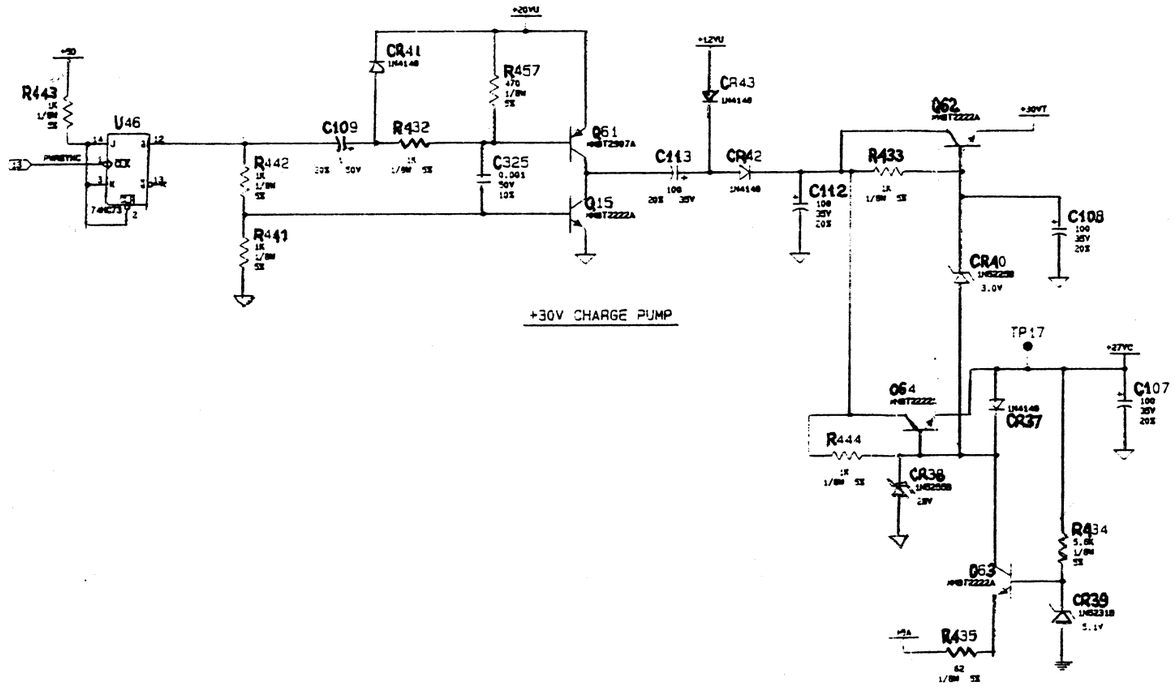
LEVEL SHIFT VNA

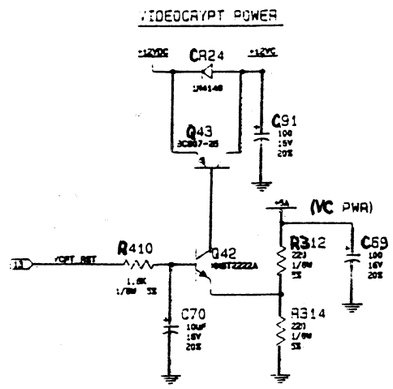
LEVEL SHIFT 3 BW TUNER

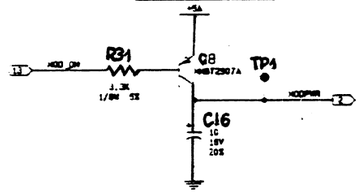
OPTION
ADDED FOR
3 BAND TUNER

TITLE	TUNER SUPPORT
SIZE	E
DWG NO	T75020300-00
SCALE	NONE
SHEET	11 of 13

SAA7007







ISSUED
JUN 0 4 2003

HTS
ECO # 2460
SHEET 125 OF 134

TITLE	CHARGE PUMP, MISC POWER
SIZE	E
DWG NO	T75020300-00
SCALE	NONE
SHEET	12 of 13

SA8700

CPU
538

PROM1
U41
27512

PROM2
U42
27C515

RAM1
U40
62256

MEMORY DECODE

U36

GATE ARRAY
U39

GRAPHICS GENERATOR
U35

BATTERY BACKUP

BUZZER

4MHZ OSCILLATOR

VIDEOCRYPT CHANNEL CHANGE RESET

REMOTE SENSE INPUT

(NMI_GND) (FROM SUPPLY)

HTS ENGINEERING
ECO # 2460
SHEET 126 OF 134

TITLE	CPU, MEMORY, GATE ARRAY	
SIZE	DWG NO	
E	T75020300-00	
SCALE NONE	SHEET	13 of 13